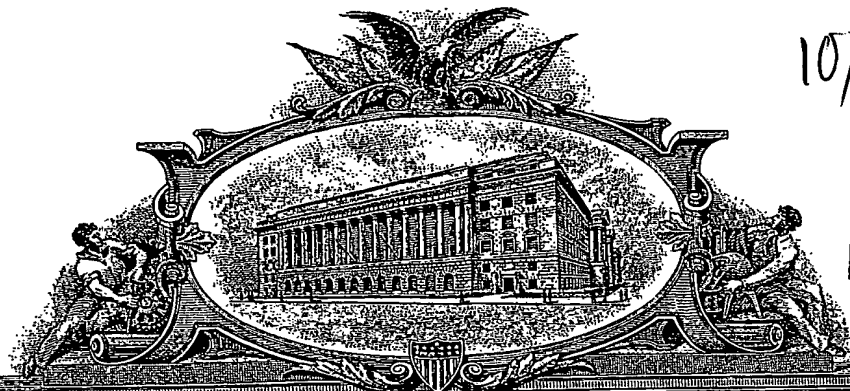


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APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A
FILING DATE.**

**APPLICATION NUMBER: 60/358,068
FILING DATE: February 19, 2002
RELATED PCT APPLICATION NUMBER: PCT/US03/04135**



**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**

L. Edelen

**L. EDELEN
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02-21-02

A/PROV

02/19/02
JC872 U.S. PTO

Practitioner's Docket No. 65961-0007 (702429PRO)

PATENT

Preliminary Classification:

Proposed Class:

Subclass:

JC872 U.S. PTO
60/358068
02/19/02

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P. Section 601, 7th ed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Clarence P. Lipke and Scott D. Shields

For: DIMPLED RECYCLABLE SUBSTRATE FOR AN INTERIOR TRIM
PANEL

Box Provisional Patent Application
Commissioner for Patents
Washington, D.C. 20231

COVER SHEET FOR FILING PROVISIONAL APPLICATION (37 C.F.R. SECTION 1.51(c)(1))

WARNING: "A provisional application must also include the cover sheet required by Section 1.51(c)(1) or a cover letter identifying the application as a provisional application. Otherwise, the application will be treated as an application filed under paragraph (b) [nonprovisional application] of this Section." 37 C.F.R. Section 1.53(c)(1). See also M.P.E.P. Section 201.04(b), 6th ed., rev. 3.

NOTE: "A complete provisional application does not require claims since no examination on the merits will be given to a

CERTIFICATION UNDER 37 C.F.R. SECTION 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this correspondence and the documents referred to as attached therein are being deposited with the United States Postal Service on February 19, 2002, in an envelope as "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service under 37 C.F.R. Section 1.10, Mailing Label Number EV 051008913 US, addressed to the Commissioner for Patents, Washington, D.C. 20231.

Sarah J. Goodwin

(type or print name of person mailing paper)

Sarah J. Goodwin

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. Section 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. Section 1.10(b).
"Since the filing of correspondence under Section 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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provisional application. However, provisional applications may be filed with one or more claims as part of the application. Nevertheless, no additional claim fee or multiple dependent claims fee will be required in a provisional application." Notice of December 5, 1994, 59 Fed. Reg. 63,951, at 63,953.

"Any claim filed with a provisional application will, of course, be considered part of the original provisional application disclosure." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.

NOTE: "A provisional application is not entitled to the right of priority under 35 U.S.C. Section 119 or 365(a) or Section 1.55, or to the benefit of an earlier filing date under 35 U.S.C. Section 120, 121 or 365(c) or Section 1.78 of any other application. No claim for priority under Section 1.78(a)(3) may be made in a design application based on a provisional application. No request under Section 1.293 for a statutory invention registration may be filed in a provisional application. The requirements of Sections 1.821 through 1.825 regarding application disclosures containing nucleotide and/or amino acid sequences are not mandatory for provisional applications." 37 C.F.R. Section 1.53(c)(3).

NOTE: "No information disclosure statement may be filed in a provisional application." 37 C.F.R. Section 1.51(d). "Any information disclosure statements filed in a provisional application would either be returned or disposed of at the convenience of the Office." Notice of December 5, 1994, 59 Fed. Reg. 63,591, at 63,594.

NOTE: "No amendment other than to make the provisional application comply with the patent statute and all applicable regulations, may be made to the provisional application after the filing date of the provisional application." 37 C.F.R. Section 1.53(c).

NOTE: 35 U.S.C. 119(e) provides that "[i]f the day that is 12 months after the filing date of a provisional application falls on a Saturday, Sunday, or Federal Holiday within the District of Columbia, the period of pendency of the provisional application shall be extended to the next succeeding secular or business day."

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 C.F.R. Section 1.51(c)(1)(i). The following comprises the information required by 37 C.F.R. Section 1.51(c)(1):

1. The name(s) of the inventor(s) is/are (37 C.F.R. Section 1.51(c)(1)(ii)):

NOTE: "If the correct inventor or inventors are not named on filing, a provisional application without a cover sheet under Section 1.51(c)(1), the later submission of a cover sheet under Section 1.51(c)(1) during the pendency of the application will act to correct the earlier identification of inventorship." 37 C.F.R. Section 1.48(f)(2).

NOTE: "The naming of inventors for obtaining a filing date for a provisional application is the same as for other applications. A provisional application filed with the inventors identified as 'Jones et al.' will not be accorded a filing date earlier than the date upon which the name of each inventor is supplied unless a petition with the fee set forth in Section 1.17(i) is filed which sets forth the reasons the delay in supplying the names should be excused. Administrative oversight is an acceptable reason. It should be noted that for a 35 U.S.C. 111(a) application to be entitled to claim the benefit of the filing date of a provisional application the 35 U.S.C. 111(a) application must have at least one inventor in common with the provisional application." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.

The term "invention" is typically used to refer to subject matter which applicant is claiming in his/her application. Because claims are not required in a provisional application, it would not be appropriate to reference joint inventors as those who have made a contribution to the "invention" disclosed in the provisional application. If the "invention" has not been determined in the provisional application because no claims have been presented, then the name(s) of those person(s) who have made a contribution to the subject matter disclosed in the provisional application should be submitted. Section 1.45(c) states that "if multiple inventors are named in a provisional application, each named inventor must have made a contribution, individually or jointly, to the subject matter disclosed in the provisional application." All that Section 1.45(c) requires is that if someone is named as an inventor, that person must have made a contribution to the subject matter disclosed in the provisional application. When applicant has determined what the invention is by the filing of the 35 U.S.C. 111(a) application, that is the time when the correct inventors must be named. The 35 U.S.C. 111(a) application must have an inventor in common with the provisional application in order for the 35 U.S.C. 111(a) application to be entitled to claim the benefit of the provisional application under 35 U.S.C. 119(e). Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,208.

See 37 C.F.R. Section 1.53.

1.	<u>Clarence</u> GIVEN NAME	<u>P.</u> MIDDLE INITIAL OR NAME	<u>Lipke</u> FAMILY (OR LAST) NAME
2.	<u>Scott</u> GIVEN NAME	<u>D.</u> MIDDLE INITIAL OR NAME	<u>Shields</u> FAMILY (OR LAST) NAME

2. Residence address(es) of the inventor(s), as numbered above (37 C.F.R. Section 1.51(c)(1)(iii)):

1. 11374 Nora Dr., Fenton, Michigan 48430
2. 8090 High Point Trail, White Lake, Michigan 48386

3. The title of the invention is (37 C.F.R. Section 1.51(c)(1)(iv)):

DIMPLED RECYCLABLE SUBSTRATE FOR AN INTERIOR TRIM PANEL

4. The name, registration, customer and telephone numbers of the practitioner (if applicable) are (37 C.F.R. Section 1.51(c)(1)(v)):

Name of practitioner: Peter J. Rashid, Esq.

Reg. No. 39,464 Tel. (248) 594-0624

Customer No. 010291

(complete the following, if applicable)

☐ A power of attorney accompanies this cover sheet.

5. The docket number used to identify this application is (37 C.F.R. Section 1.51(c)(1)(vi)):

Docket No. 65961-0007

6. The correspondence address for this application is (37 C.F.R. Section 1.51(c)(1)(vii)):

Rader, Fishman & Grauer PLLC

39533 Woodward Avenue, Suite 140

Bloomfield Hills, Michigan 48304

7. Statement as to whether invention was made by an agency of the U.S. Government or under contract with an agency of the U.S. Government. (37 C.F.R. Section 1.51(c)(1)(viii)).

This invention was made by an agency of the United States Government, or under contract with an agency of the United States Government.

☒ No
☐ Yes

The name of the U.S. Government agency and the Government contract number are:

8. Identification of documents accompanying this cover sheet:

A. Documents required by 37 C.F.R. Section 1.51(c)(2)-(3):

Specification:	No. of pages	<u>4</u>
Claims:	No. of sheets	<u>1</u>
Abstract:	No. of sheets	<u>1</u>
Drawings:	No. of sheets	<u>4</u>

B. Additional documents:

☒ Claims: No. of claims 6

Note: See 37 C.F.R. Section 1.51.

☐ Power of attorney
☐ Small entity statement
☐ Assignment
☐ Other

NOTE: Provisional applications may be filed in a language other than English as set forth in existing Section 1.52(d). However, an English language translation is necessary for security screening purposes. Therefore, the PTO will require the English language translation and payment of the fee mandated in Section 1.52(d) in the provisional application. Failure to timely submit the translation in response to a PTO requirement will result in the abandonment of the provisional application. If a 35 U.S.C. 111(a) application is filed without providing the English language translation in the provisional application, the English language translation will be required to be supplied in every 35 U.S.C. 111(a) application claiming priority of the non-English language provisional application. Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,209.

9. Fee

The filing fee for this provisional application, as set in 37 C.F.R. Section 1.16(k), is \$160.00, for other than a small entity, and \$80.00, for a small entity.

☐ Applicant is a small entity.
☒ Applicant is not a small entity.

NOTE: "A . . . statement in compliance with existing Section 1.27 is required to be filed in each provisional application in which it is desired to pay reduced fees." Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,197.

10. Small entity statement

☐ The statement(s) that this is a filing by a small entity under 37 C.F.R. Sections 1.9 and 1.27 is(are) attached.

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1. Fee payment

- ☒ Fee payment in the amount of \$160.00 is being made at this time.
- ☐ No filing fee is to be paid at this time. (This and the surcharge required by 37 C.F.R. Section 1.16(l) can be paid subsequently.)

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- ☐ Check in the amount of \$ _____.
- ☒ Charge Account No. 18-0013, in the amount of \$160.00.
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Please charge Account No. 18-0013 for any fee deficiency.

Date: February 19, 2002

Reg. No.: 39,464

Tel.: (248)594-0624

Customer No.: 010291


Signature of practitioner

Peter J. Rashid, Esq.
(type or print name of practitioner)
Rader, Fishman & Grauer PLLC
39533 Woodward Avenue, Suite 140
Bloomfield Hills, Michigan 48304

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RADER, FISHMAN AND GRAUER PLLC
39533 WOODWARD AVENUE, SUITE 140
BLOOMFIELD HILLS, MI 48304

UNITED STATES PROVISIONAL PATENT APPLICATION

of

Clarence P. Lipke
a citizen of the United States
residing at 11374 Nora Dr.
Fenton, Michigan 48430

and

Scott D. Shields
a citizen of the United States
residing at 8090 High Point Trail
White Lake, Michigan 48386

for new and useful invention entitled:

DIMPLED RECYCLABLE SUBSTRATE FOR AN INTERIOR TRIM PANEL

Peter J. Rashid, Reg. No. 39,464

Attorney Docket No. 65961-0007
Express Label No. EV 051 008 913 US

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DIMPLED RECYCLABLE SUBSTRATE FOR AN INTERIOR TRIM PANEL

INVENTORS: CLARENCE LIPKE, SCOTT SHIELDS

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] This invention is generally related to automotive interior trim panels, and in particular to a headliner composed of a fibrous or porous batt material, such as polyethylene terephthalate (PET) or the like, and a method for making the same.

Description of the Related Art

[0002] It is desirable within the field to produce an automotive trim panel, such as a headliner, composed of one type of material thereby permitting easier production along with easier recycling of excess or scrap material. The current standard is to use a fibrous batt material, such as polyethylene terephthalate (PET), which allows for easy molding and recycling. However, current headliners comprised of 100% PET typically lack sufficient durability and strength to carry modular components often required by them. To accommodate for this lack of durability and strength, either other types of material such as glass are added, or simply additional layers or additional material must be used, resulting in an overly heavy headliner.

SUMMARY OF THE INVENTION

[0003] The invention is directed to a substrate for an interior trim panel, such as a headliner, including a substrate composed of a fibrous or porous batt material, such as PET, which has a significant level of strength while minimizing the use of material and

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remaining relatively light in weight. This is accomplished by forming impressions into a first, back side of the PET batt material that extend throughout the full thickness of the layer to create projections that extend outward from a second, front side of the batt material by compressing both sides of the PET batt material to form a substrate with a relatively high density as compared to the conventional substrates. A layer is then attached to the substrate, with the layer and projections of the substrate forming a "I-beam" structure that further enhances the strength of the interior trim panel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] In the drawings:

[0005] Figure 1 is a photograph of a back side of an interior trim panel, such as a headliner, in accordance with the present invention;

[0006] Figure 2 is a photograph depicting a partially cut-away view of a front side of a headliner in accordance with the present invention;

[0007] Figure 3 is a photograph of a side perspective view of a headliner in accordance with the present invention;

[0008] Figure 4 is a simplified depiction of a method of producing a headliner in accordance with the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0009] Referring now to Figs. 1-3, the invention consists of two structural layers, both constructed from a fibrous and/or porous material such as polyethylene terephthalate (PET) which preferably allows for recycling of the material. The first structural layer comprises a substrate 10 formed of a fibrous sheet of PET batt material with a first, front side and second, back side. The substrate 10 is formed to have dimples or impressions running from the back side to the front side through the full thickness of the substrate 10, resulting in corresponding projections extending outward on the front side of the substrate

10. Figure 1 reveals the back side of the substrate 10 with impressions 12 into the back side projecting toward the front side to form corresponding projections 14 extending outward from the front side of the substrate 10. A second structural layer 16 is attached to the projections 14 of the substrate 10 which results in a I-beam structure imparting greater strength to the headliner than either layer alone possesses. This resulting structure is best depicted in the side view of Figure 3. A face fabric 18 can then be applied upon the second layer 16 to achieve the appropriate appearance of the headliner in relation to the vehicle it will be utilized in. Alternatively, the face fabric 18 may be omitted or the second structural layer 16 and the face fabric 18 may be designed to be one in the same.

[0010] Unlike previous interior trim panels formed with substrates, Applicants' use of the substrate 10 in which the impressions 12 that extend through its full thickness and the projections 14 that project outward from the other side by compressing both sides of the substrate 10 result in a greater consolidation or higher density of fibers within the substrate 10. This process results in significantly enhanced strength while minimizing the amount of material used. As a result, a lightweight but sufficiently strong interior trim panel can be achieved.

[0011] In the embodiment depicted in Figs. 1-3, the impressions 12 and corresponding projections 14 are circular in shape. However, it will be appreciated that the invention is not limited to the shape of the impressions 12 and the projections 14, but the invention can be practiced by using a variety of other desirable shapes based on matters such as preference, application or production considerations. Such shapes include, but is not limited to, diamond, hexagonal, rectangular, octagonal, triangular, or the like.

[0012] As depicted in Figure 1, the impressions 12 and corresponding projections 14 are arranged in a linear pattern, with neighboring rows being offset from each other. This arrangement allows for a greater density of impressions 12 and projections 14 per a unit area, leading to greater strength for the substrate 10. However, it will be appreciated that

the invention is not limited to this arrangement, but can be practiced by arranging the impressions 12 and the projections 14 in a variety of other patterns depending on factors such as application or production considerations. Such patterns include, but is not limited to, diamond, hexagonal, rectangular, octagonal, triangular, or the like.

[0013] Figure 5 illustrates a method of manufacturing a headliner or interior trim panel corresponding to the preferred embodiment described above. In simplified terms, such a method would include forming the substrate 10 from the fibrous batt of PET material by means such as a roller press 20 to create the impressions 12 on the back side and the corresponding projections 14 extending outwardly from the front side. At the same time, the fibrous batt is compressed together on both sides to form the substrate 10 having a higher density as compared to the uncompressed fibrous batt. The second layer 16 would then be fixedly attached to the substrate 10, and in particular to the projections 14, by any means known in the art, such as compression heating 22, or the like. The subsequent headliner substrate 10 could then be molded into the appropriate form by a press 24.

[0014] In an alternate embodiment of the invention, a second fibrous batt of PET material can be placed on the projections 14 before the second layer 16 is fixedly attached to the substrate 10. Because the second batt of PET material is formed between the projections 14, the alternate embodiment of the invention provides improved sound absorbing properties as compared to the first embodiment of the invention.

[0015] While the invention has been specifically described in connection with certain specific embodiments thereof, it is to be understood that this is by way of illustration and not of limitation, and the scope of the appended claims should be construed as broadly as the prior art will permit.

CLAIMS

What is claimed is:

1. A substrate for an interior trim panel having a front side and a back side, wherein said substrate is compressed on both sides so as to form impressions on one of said sides that extend through a full thickness of said substrate so as to create corresponding projections extending outwardly from an opposite side.
2. An interior trim panel for mounting in a vehicle, essentially comprising:

a substrate having a front side and a back side with said front side facing the interior of said vehicle, said substrate being compressed on both sides so as to form impressions on one of said sides that extend through a full thickness of said substrate so as to create corresponding projections extending outwardly from an opposite side, and

a layer adhered to said projections of said substrate.
3. The headliner according to Claim 2, wherein said substrate and layer are composed of polyethylene terephthalate (PET).
4. The headliner according to Claim 2, wherein said impressions project from said back side to said front side.
5. The headliner according to Claim 2, wherein said impressions are arranged in a manner so as to have a maximum density of impressions per a unit area.
6. A method for manufacturing a interior trim panel, comprising the steps of:

compressing both sides of a batt of fibrous material to form a substrate having depressions on one side and corresponding projections on an opposite side,

attaching a layer to the projections, and

molding said substrate and said layer into an appropriate headliner shape.

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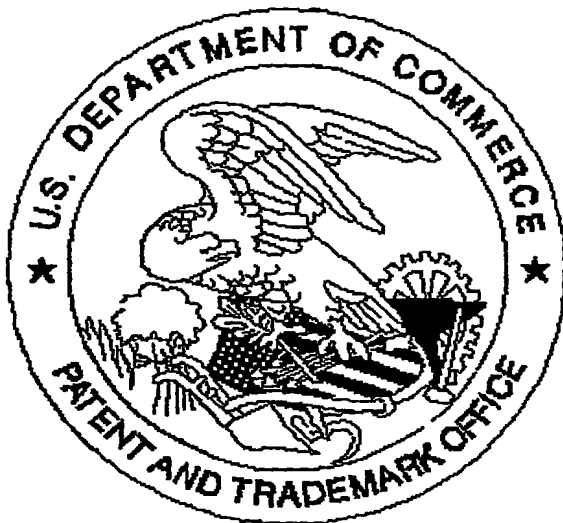
DIMPLED RECYCLABLE SUBSTRATE FOR AN INTERIOR TRIM PANEL

ABSTRACT OF THE DISCLOSURE

An interior trim panel, such as a headliner, formed by a substrate composed of a fibrous or porous batt material, such as polyethylene terephthalate (PET). The substrate includes a first, back side and second, front side. In order to increase the strength of the substrate, dimples or impressions are formed in one side of the substrate and corresponding projections are formed extending from the opposite side by simultaneously compressing both sides of the fibrous batt. A second structural layer is then attached to the substrate, preferably to the projections of the substrate, resulting in a "I-beam" structure that further enhances the strength of the interior trim panel. In another embodiment, a second layer of fibrous or porous batt material may be placed over the projections before fixedly attaching the second structural layer to the substrate.

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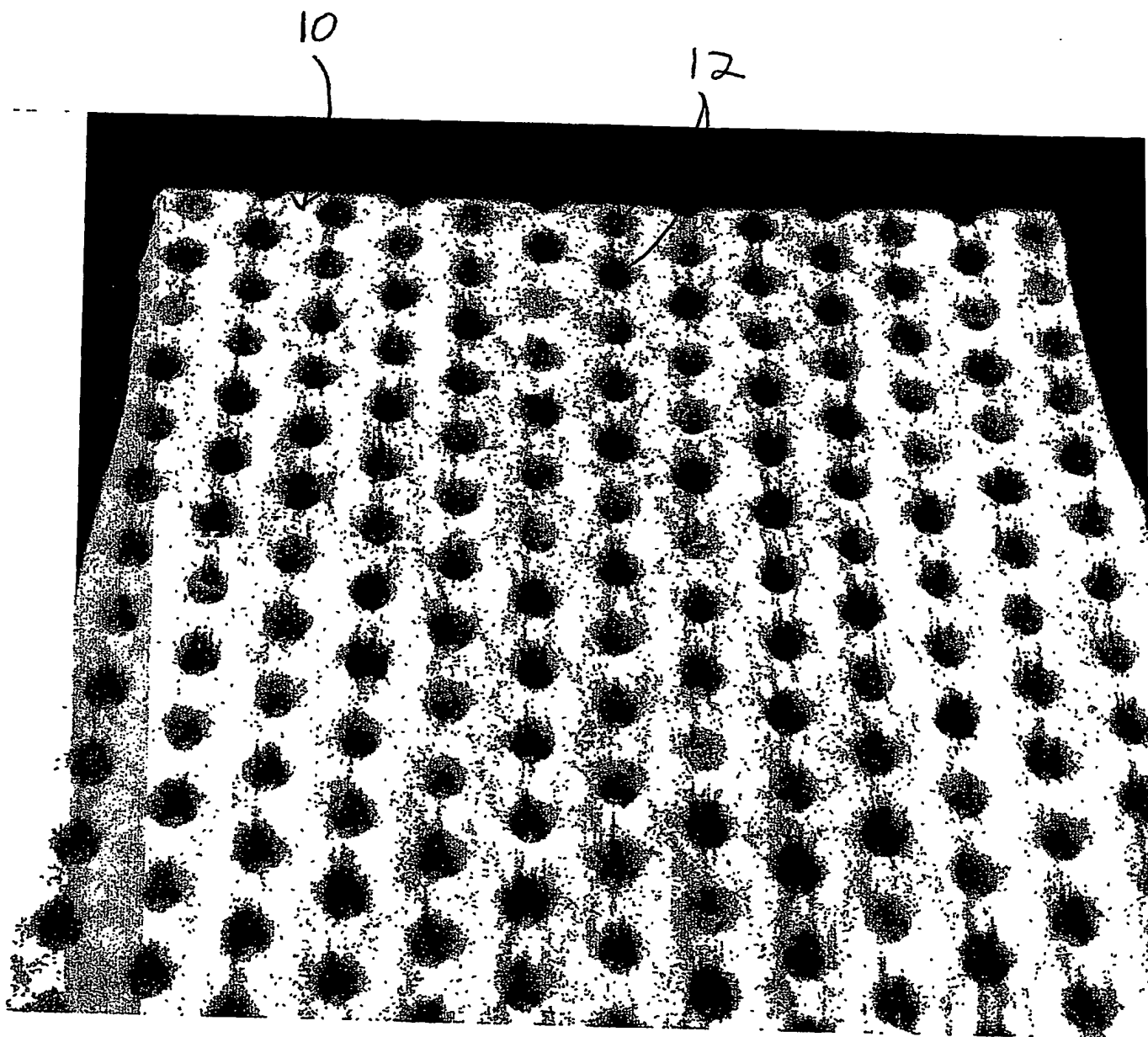


Figure 1

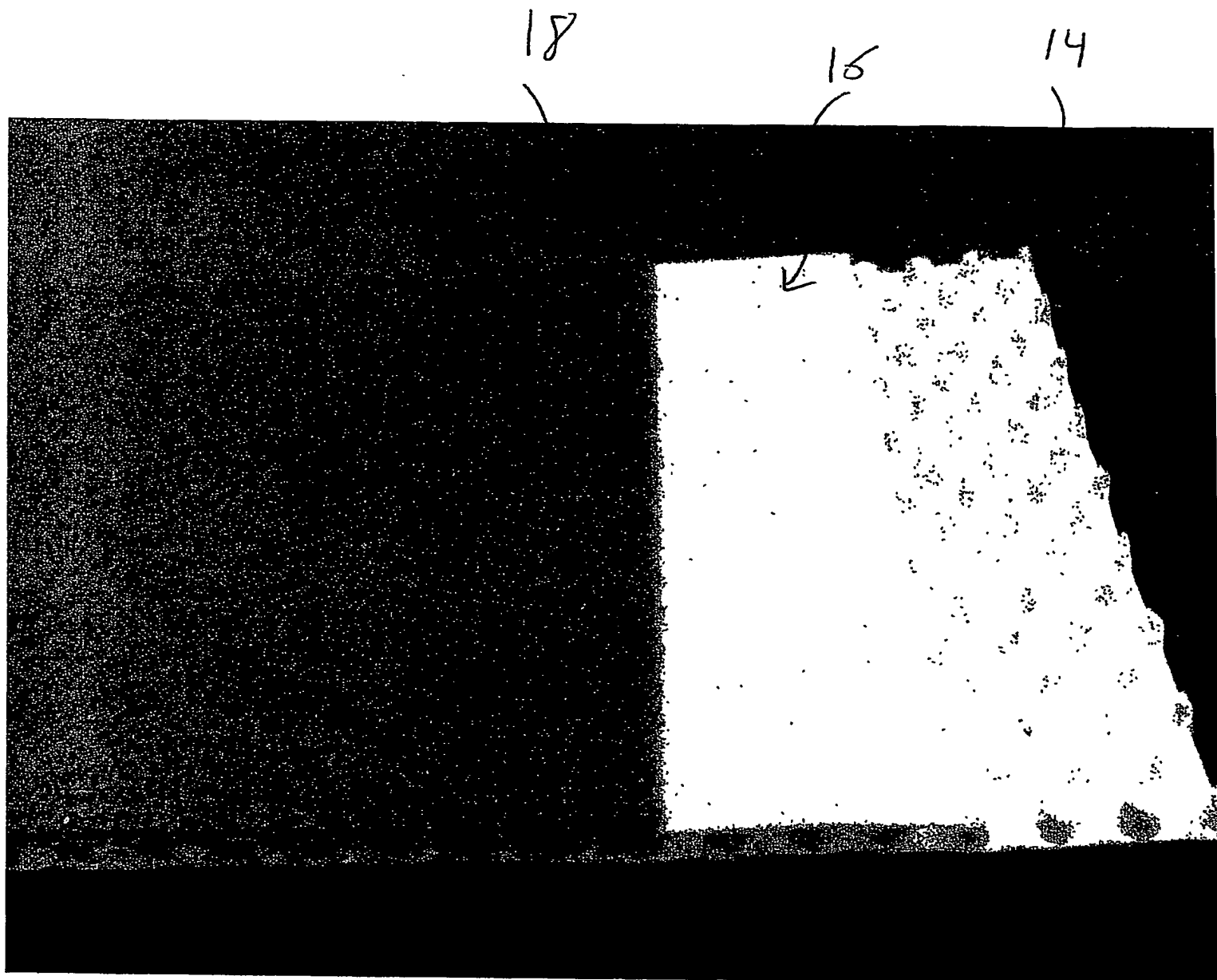
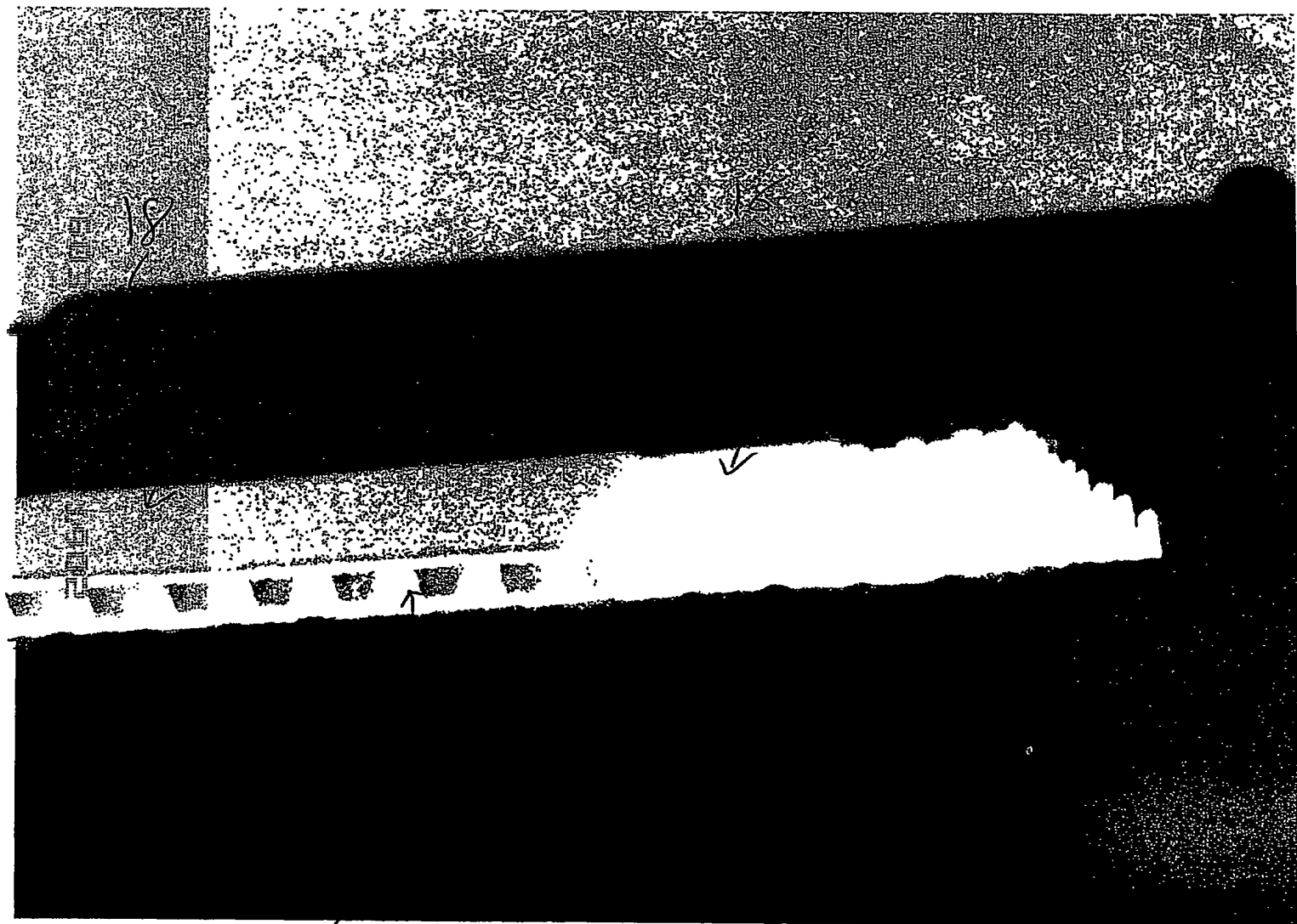


Figure 2



14

Figure 3

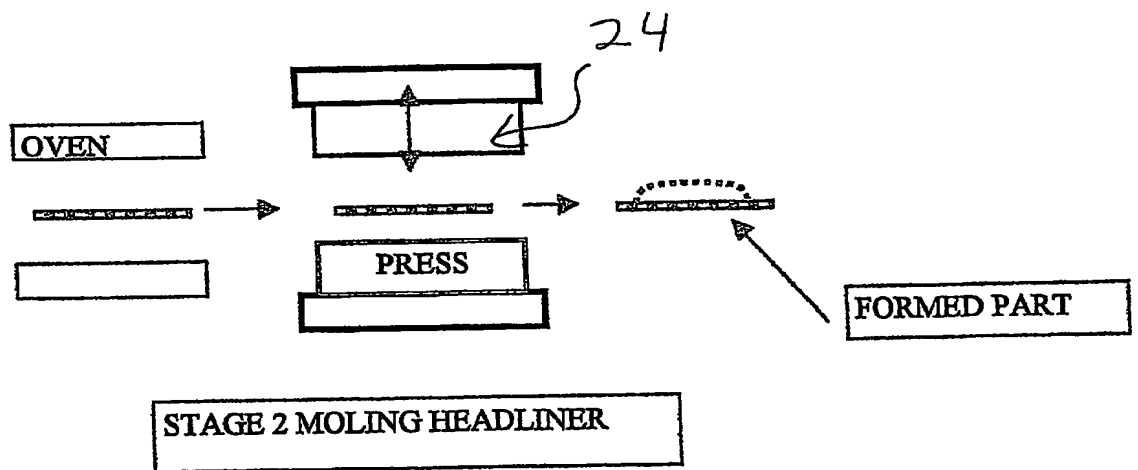
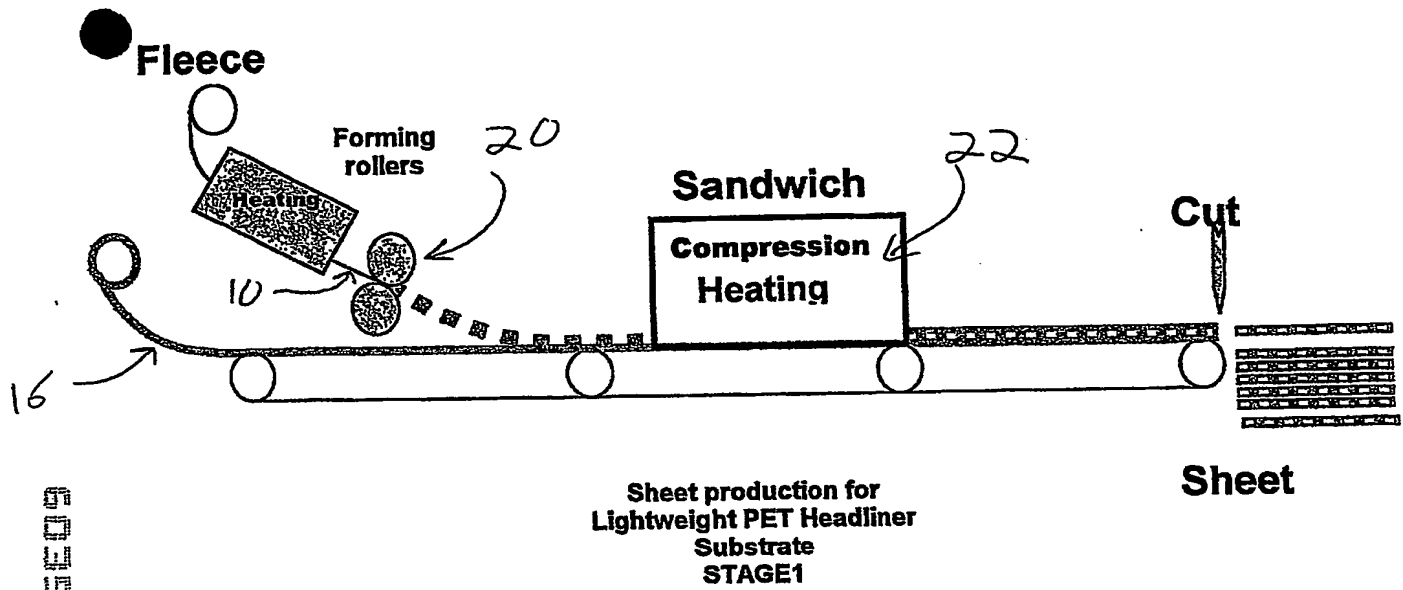


Figure 4

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